

Today's Topics:

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Whatizit?
Where to get a part or two

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 8 Apr 91 18:55:00 GMT
From: news-mail-gateway@ucsd.edu
Subject: "Stray Voltage" on 60 Minutes
To: info-hams@ucsd.edu

There was a 60 Minutes segment the night of Sunday, 7 April, that dealt
with the problems caused to several dairy farmers by a power-company-
caused condition called "stray voltage". Unfortunately, this being mass-
market TV, there was absolutely no coherent technical explanation of
what they were talking about. They used the "stray voltage" term roughly
equivalently to saying "evil vapors" or some other archaic phrase to
describe the cause of sickness. Does anyone on the net know the details
of what this is all about, and can you post an explanation?

(To those who ask "why is this on the hams list?", I say: a) because
I know of no other mailing list devoted to electrical/electronic
topics, and b) because whatever these ill effects might be, the

mechanism described sounded a lot like what happens in a poorly-grounded ham shack, with RF appearing in unwanted places causing undesired effects; admittedly, they only were speaking of 60Hz and not RF in the program, but the situation appears to be parallel.)

Regards, Will
wmartin@stl-06sima.army.mil

Date: 8 Apr 91 14:45:18 GMT
From: news-mail-gateway@ucsd.edu
Subject: 600XLT Scanner Mods request
To: info-hams@ucsd.edu

Does anyone have mods for this scanner?
Thanks,

Jay

Date: 8 Apr 91 15:19:48 GMT
From: news-mail-gateway@ucsd.edu
Subject: Amateur Radio in Space
To: info-hams@ucsd.edu

I had heard that the ham satellite signals would come in readably on an ordinary scanner with the indoor whip antenna, so left a couple scanners manually tuned to 145.55 MHz all day Saturday, with the squelch set just above where it would break open. A few times some noise would come thru, but I never heard any shuttle signals or any voice traffic at all. This was in St. Louis, MO, inside an ordinary brick house (not steel frame). Anyone know which of the following is most likely true?

- 1) The shuttle never was transmitting on 145.55 when it was above my site's horizon.
- 2) The indoor whips just aren't good enough antennas for this.
- 3) The scanners (two older Regency models) aren't sensitive enough.
- 4) Some other reason?

All the news publicity was about the astronauts talking with high school kids using ham radio. I'd be far more interested in their contacts with adult hams. Did they do any of that on voice?

Regards, Will
wmartin@stl-06sima.army.mil

Date: 8 Apr 91 15:23:13 GMT
From: world!ksr!jfw@uunet.uu.net
Subject: Building Transmatch - should I use a Ferrite or Iron Powder?
To: info-hams@ucsd.edu

youngqd@jacobs.cs.orst.edu (Dean Youngquist) writes:

>Hello,
> I'm building a transmatch for use on the HF bands and I would like to
> make the inductor using a toriodal core of Feritte or Iron Powder.
> I have a catalog from Amidon Associates and they offer both types.
> Can anyone tell me the advantages and disadvantages of Iron Powder
> verses Ferrite material for inductor cores? Is one more efficient,
> takes fewer turn of wire, handle more power?

Iron powder will offer higher power handling capability and better Q than ferrite; these are valuable in a transmatch. Ferrite provides higher inductances; this (plus the lower Q) makes it more useful for broadband transmission-line transformers (such as you might add to a transmatch as a balun transformer).

> Also, what inductance
> value is commonly used in HF transmatch boxes?

For low power transmatches, W1FB's QRP Handbook and the W1FB Design Notebook offer designs (including a fairly clever way of getting a continuously-variable inductance without using a roller inductor: use a 1.5 uH open-air coil into which you can insert a u=125 ferrite rod); these values could be used in a high-power transmatch. The ARRL Handbook also has transmatch designs for higher power using open-air coils.

Date: 8 Apr 91 03:51:16 GMT
From: swrinde!elroy.jpl.nasa.gov!sdd.hp.com!news.cs.indiana.edu!widener!dsinc!
unix.cis.pitt.edu!gvlf3.gvl.unisys.com!lock60!veterans@ucsd.edu
Subject: Call for Votes (CFV): soc.veterans
To: info-hams@ucsd.edu

[A repost, for those who may have missed it the first time]

First Call for Votes

NAME: soc.veterans

STATUS: unmoderated

CHARTER: For socializing between veterans of military service, and
the discussion of social issues relating to veterans.

Background:

On March 9, JEWELLLW@vm.cc.purdue.edu (Larry W. Jewell) posted the first RFD for this group. Although he originally called for the creation of "talk.veterans", he has since agreed that "soc" is probably a better hierarchy for the group. There was also a discussion of creation of a veterans group over in "alt", the proponents over there have agreed to wait for the outcome of a vote for a mainstream group. Although the group will be primarily concerned with the issues relating to US veterans, some issues relate to veterans of all countries. Posters will be encouraged to limit distribution of articles relating to US-only issues via the use of the "Distribution: us" header.

How to vote:

Mail (not post) your vote to one of the addresses below. Indicate clearly whether you are voting YES or NO either in the subject or the body of the message. I'll be counting these by hand, so there's no specific format required - just make it clear which way you're voting. Here are the addresses:

internet:

veterans@Canal.ORG (the Reply-To: address of this article)

uucp:

lock60!veterans

clueless internet:

veterans%canal.org@gvlv2.gvl.unisys.com [128.126.220.102]

pathless uucp:

uunet!cbmvax!gvlv2!lock60!veterans

Voting Period:

Starts: March 31

Ends: April 30

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Mark H. Weber (mhw@Schuylkill.Canal.Org) "Schuylkill" (skool' kill)
Mont Clare (...!uunet!cbmvax!gvlv2!lock60!mhw) is a Dutch word meaning
PA USA "hidden river"

Date: 8 Apr 91 10:11:33 GMT
From: qualcom.qualcomm.com!qualcom.qualcomm.com!antonio@ucsd.edu
Subject: Homemade Ferrite Thingies?
To: info-hams@ucsd.edu

In article <2asZZ1w164w@tosspot> lee@tosspot (Lee Reynolds) writes:
>A fellow ham (who is notably thrifty) asks the following question:

>Is it possible to manufacture (at home) lossy ferrite devices for
>screening purposes (cables, etc.)?

Sure! The ARRL handbook (at least in some years) describes such a homebrew
choke. In this case it wasn't ferrite, but iron, which is probably better
for low frequencies anyway... You take the cardboard tube from a roll
of paper towels... run your coax thru it. Then stuff the space inside the
tube with steel wool.

Date: 8 Apr 91 13:39:00 GMT
From: news-mail-gateway@ucsd.edu
Subject: Kenwood TS-820 Info Needed
To: info-hams@ucsd.edu

I have a TS-820 Service Manual with pages 11-81. Does anyone have one that
they could copy the cover and pages 1-10 from, and any pages past 81 if there
are any? I'd be happy to pay for any costs.

steve - W3GRG

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      /~~~~~\
      /      * Stephen R. Mosier \
      /      Office of Research Services \
      / University of North Carolina at Greensboro |
|-----|
      \-----\
VOICE: 919-334-5878 \
PICTURES: 919-334-3140 \
E-MAIL: mosier@uncg.bitnet ---
      TWO METERS: W3GRG monitors 146.76
      INTERNET: mosier@steffi.acc.uncg.edu
```

SNAIL-MAIL: Greensboro, NC 27412-5001
NUCLEAR MISSILE: 79 48 26 W / 36 03 55 N
TELEPATHY: however you can make it work

Date: 8 Apr 91 11:27:04 GMT
From: news-mail-gateway@ucsd.edu
Subject: Keyers
To: info-hams@ucsd.edu

Just a note about the dot/dash left/right question. I built my own keyer from the Curtis chip (I'd got an MFJ one for \$15 at the Deerfield Flea Market but blew it up when I assumed the snap connector inside was for a 9V battery...instead, it was for a (missing) 4xAA cell holder...so I used the case and controls to build a new one!) and I had the same question. Curtis sent me, along with the chip, a neat little article about Iambic keyers which indicated among other things, that the "dot" paddle should be the left one.

Quite a while later, my father-in-law gave me his old Vibroplex bug. Pushing on the left side of the paddle causes it to create dots, so I suspect that when the electronic keyers came out, the left paddle was chosen as the dot paddle so as not to confuse the users of the "old" mechanical keyers.

Now, let's start another debate over how to connect left and right paddles to the tip and ring of a stereo phone plug...which goes to which and back up your choice with references to the literature...:-)

=====

Peter Simpson, KA1AXY
Data General Corp M/S E132

Date: 8 Apr 91 15:53:02 GMT
From: pa.dec.com!shlump.nac.dec.com!mast.enet.dec.com!reisert@decwrl.dec.com
Subject: Looking for Ben, DL6RAI
To: info-hams@ucsd.edu

Ben,

The message I sent to you at "buettneb@informatik.tu-muenchen.dbp.de" was rejected. Please send me a message so I can reply. I have some answers to your CT questions.

- Jim AD1C

=====

"The opinions expressed here in no way represent the views of Digital Equipment Corporation."

James J. Reisert Internet: reisert@mast.enet.dec.com
Digital Equipment Corp. UUCP: ...decwrl!mast.enet!reisert
146 Main Street Voice: 508-493-5747
Maynard, MA 01754 FAX: 508-493-????

Date: 8 Apr 91 11:19:59 GMT
From: news-mail-gateway@ucsd.edu
Subject: NASA Prediction Bulletins: Space Shuttle
To: info-hams@ucsd.edu

The most current orbital elements from the NASA Prediction Bulletins are carried on the Celestial BBS, (513) 427-0674, and are updated several times weekly. Documentation and tracking software are also available on this system. As a service to the satellite user community, the most current elements for the current shuttle mission are provided below. The Celestial BBS may be accessed 24 hours/day at 300, 1200, or 2400 baud using 8 data bits, 1 stop bit, no parity.

STS 37
1 21224U 91 27 A 91 98.00884259 .00009999 00000-0 25599-3 0 72
2 21224 28.4675 222.1389 0011331 289.6409 194.6753 15.37518721 374
--

Dr TS Kelso Assistant Professor of Space Operations
tkelso@blackbird.afit.af.mil Air Force Institute of Technology

Date: 8 Apr 91 13:41:51 GMT
From: swrinde!zaphod.mps.ohio-state.edu!uakari.primate.wisc.edu!caen!
math.lsa.umich.edu!spsd4360a.erim.org!hideg@ucsd.edu
Subject: New ICOM toys?
To: info-hams@ucsd.edu

Hello!

A posting here recently mentioned the Icom IC-W1 as a replacement for the IC-24AT. Now, I dearly love my 24AT, but I'm wondering: What's on the horizon?

What is the W1?

I also heard mention of an IC-W2A in another post. What is it?

Will I have to take my checkbook to Dayton? :-)

--Steve

Steve Hideg N8HSC

hideg@spsd4360a.erim.org

Date: 8 Apr 91 16:29:11 GMT
From: elroy.jpl.nasa.gov!kilroy!cyamamot@ames.arpa
Subject: TH-77A PLL Unlock Override Mod
To: info-hams@ucsd.edu

After receiving the service manual and completing the 'chip resistor' mods for my TH-77A, I have another mod to share.

Some of you may have been annoyed at the constant beeping when the PLL is not in lock even though you are able to listen at a given frequency. Yet adjusting the VFOs is quite a task. They are both shielded and soldered to the board. There is no external access to the VFO can for any adjustments. In fact, there are no adjustable coils or trimmers in the VFO!

I have found my VFO range to be quite adequate, however, just the beeps were bothersome. But not anymore! Here is a simple mod which defeats the PLL unlock signal from reaching the CPU. There are some pros and cons associated with this however :

*** Pro ***

- The receiver never beeps anymore even though you have a marginal battery (which affects VFO/PLL lock) and are capable of receiving the given freq.
- Since the receiver no longer beeps, you can dial thru frequencies quickly without waiting a full half-second for the display to change each time the radio beeps.
- When an out of band transmit is attempted, the transmitter no longer shuts off after 1 second due to marginal PLL lock.

*** Con ***

- You will not know, w/o some sort of monitor receiver, if you are xmitting when far out of band. That is because the meter will show full scale even if the PLL is out of lock and not transmitting on frequency.
- At the extreme edges of PLL lock, the VFO will vary widely in 'sling-shot' fashion until lock occurs (sometimes after 1 full second). This means your transmitted signal may be all over the band until lock occurs.

If you feel the pro outweigh the con, you may be interested in performing this mod. Be aware, that YOU are responsible for the purity, accuracy and

stability of any transmissions you make from your TH-77A. THIS MODIFICATION WILL DEFINITELY VOID YOUR WARRANTY AND PERMIT OUT-OF-BAND TRANSMISSIONS OF QUESTIONABLE QUALITY AT CERTAIN FREQUENCIES. You should not perform any out-of-band transmissions with this modification in place. THE INTENT OF THIS MODIFICATION IS TO ALLEVIATE PLL LOCK PROBLEMS IN *RECEIVE* ONLY!!

Now that the legalities are done, on with the mod. (Because I am too lazy to make drawings and directions, I have copied the one below from an earlier mod posted about the TH-77A - with the required changes)

MODIFICATIONS FOR IGNORING PLL UNLOCK

Open up the radio. There are 3 screws visible on the outside and 4 more underneath where the battery pack goes.

Locate the control board which is fixed to the front section of the radio. Look for the 100uF electrolytic capacitor (it's yellow in mine) that is at the dead center of the board (there are two IC's, one above it and one below it). It is most likely a PC mount (NOT an axial type capacitor with one lead on each end) capacitor lying on its side. You will be attaching a single wire to the negative lead of this 100uF capacitor. To avoid tearing the flex board foil traces, do not bend the leads of the capacitor.

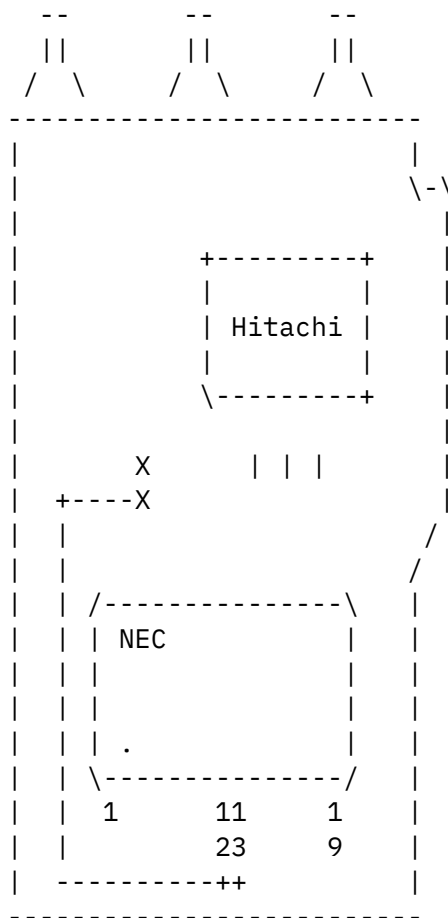
Orient the radio so that the volume controls and BNC are at 12 O'Clock on your table (farthest from you) and the bottom (where the battery connects) is at 6 O'Clock (nearest you). Looking at the lower IC which should be a rectangular NEC 75116GF-67x-3BE, there are 19 pins running along the lower edge closest to where the battery connects. There should be an embossed dimple or dot on the lower left corner of the IC to indicate pin 1. As you count from the left, locate pins 12 and 13. These two pins are defined as follows:

pin 12 - VHF Unlock Input
pin 13 - UHF Unlock Input

Normally these pins are low to indicate the PLL is in lock. When you change frequency, they *momentarily* go high (at worst about 250 milliseconds) while the VFO comes into lock. If the pulse stays high for longer than this period the CPU interprets this as a marginal lock and begins to beep. What we are going to do is permanently ground these pins (or just one if you prefer) to trick the CPU into thinking the PLL's are always in lock. There is no need to worry about shorting the output of the PLL's unlock pin since there is a 4.7K resistor between it and the CPU pins.

The best way to do this is with some fine gauge wire (I used #30 wire-wrap). If you are going to disable both VHF and UHF unlock, you can just short pins 12 and 13 together. Then connect the other end of your wire to the negative lead of that 100uF capacitor you found earlier. Here is a little pictorial

to clear things up:



The X's are where the 100uF capacitor is soldered to the board. Just tack your wire onto the capacitor's negative lead or onto it's circuit pad.

That's it! Of course this mod does nothing for you unless you have already completed the 'chip resistor' mods for allowing out of band reception. Try dialing up a frequency that used to beep every time your rotated the tuning knob (most likely a 800 Mhz frequency). It should no longer beep. In fact you could probably dialup 512 Mhz and key up the transmitter and get a full scale reading. But remember, your VFO probably won't get that high anyway, and you are most likely transmitting at some frequency where the VFO tops out at and begins to ripple in frequency as it fruitlessly attempts to lock.

SOME PERSONAL OBSERVATIONS

After retuning my UHF front end, I can now listen to some public service frequencies in peace, without the annoying beep. However, keep in mind

that if you are listening to something at 490 Mhz, your VFO is running way down at about 432 Mhz. I think a number of people feel that if they can receive at a given frequency (even marginally) they should be able to key up solidly.

If you like living dangerously and transmitting out-of-band please be considerate and know the limitations of your TH-77A. Although being able to transmit out-of-band with this non FCC type-accepted is risky enough, I must reiterate that YOU must now be watchful about your TH-77A operation. With this mod in place, the TH-77A will NO LONGER protect you from transmitting with a marginal output. The transmitter will key up whenever you ask it to, even while the PLL is still hunting for lock. However, I'm sure most of you will perform this mod simply to make receiving out-of-band more enjoyable as I've found.

Well, I hope this information helps you get more from you new toy! Happy monitoring!

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USnail: Clifford K. Yamamoto - KA6JRG | Email: cyamamot@kilroy.jpl.nasa.gov
        Jet Propelled La-bore-atore-ee |      cyamamot@grissom.jpl.nasa.gov
        4800 Oak Grove Drive             |      cyamamot@jato.jpl.nasa.gov
        M/S 238-528, Section 333          |      cky@euclid.jpl.nasa.gov
        Pasadena, Calif. 91109           |      cky@hydra.jpl.nasa.gov
-----
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MaBell: (818) 354-1242 - off. (818) 354-6042 - alt. (818) 354-6426 - lab.

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Date: 8 Apr 91 13:00:32 GMT
From: pa.dec.com!rust.zso.dec.com!shlump.nac.dec.com!esis.enet.dec.com!
magid@decwrl.dec.com
Subject: The first No-Code Ham is.....(DRUMROLL).....
To: info-hams@ucsd.edu
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In article <8819@gollum.twg.com>, sawyer@twg.com (Bruce B. Sawyer) writes...

```
>
>Give me a break. Congratulations for NOT knowing something? If I'd come in
>by this back door route I sure wouldn't be out advertising it in public. Let
>the guy take his rightful place next to the mail-order Ph.D's.
>
AA6KX
```

Bruce, of all the notes I have waded through in this and other notes files your response has got to be the biggest embarassment to the hobby of ham radio that I have seen. It far surpasses even those on 14.315.

N1HZH

Date: 8 Apr 91 11:16:46 GMT
From: news-mail-gateway@ucsd.edu
Subject: Whatizit?
To: info-hams@ucsd.edu

The key characters are "DE WCC"
That's from Wireless Cape Cod, a commercial (RCA Globecom used to own it & I have a friend, K1WT, who works there) "coast station" in Chatham, MA. Now that CW is being phased out in favor of satellites and SITOR for comms between ocean-going ships and the shore, you may not hear WCC sending CW for much longer.
There's also a QRU? at the end of the text, indicating that the operator is asking if there's any traffic for him.

=====
Peter Simpson, KA1AXY
Data General Corp M/S E132
Westboro, MA 01580
(508) 870-9837
Pete_Simpson@MERCURY.MCEO.DG.COM

Date: 8 Apr 91 15:34:27 GMT
From: world!ksr!jfw@uunet.uu.net
Subject: Where to get a part or two
To: info-hams@ucsd.edu

Does anyone know where I could buy one or two of either the Signetics NE-604 (the FM IF chip, not the famous 602 mixer) or the Motorola MC-3362? As usual, the really interesting parts aren't available from the usual small-quantify vendors (at least none of those I have catalogs from).

Thanks in advance.

John Woods, jfw@ksr.com

Date: 8 Apr 91 14:56:38 GMT
From: usc!rpi!luigi@ucsd.edu
To: info-hams@ucsd.edu

References <11806.27f641a1@zeus.unomaha.edu>, <8819@gollum.twg.com>, <1991Apr7.033118.17864@colorado.edu>

Subject : Re: The first No-Code Ham is.....(DRUMROLL).....

.policy .policy .policy

Date: 7 Apr 91 16:05:40 GMT
From: ogicse!emory!wa4mei!ke4zv!gary@ucsd.edu
To: info-hams@ucsd.edu

References <12593@pt.cs.cmu.edu>, <7155@mace.cc.purdue.edu>,
<1991Apr5.032227.26020@neon.Stanford.EDU>emory
Reply-To : gary@ke4zv.UUCP (Gary Coffman)
Subject : Re: Licensing Philosophy

In article <1991Apr5.032227.26020@neon.Stanford.EDU> kaufman@neon.Stanford.EDU
(Marc T. Kaufman) writes:

>
>That's too bad, because there is no longer any such thing as a second class
>radiotelephone license :-(. There is no law that prohibits a CBer from
>building a transmitter, but he can't operate it on a valid CB frequency until
>he gets it type accepted [he does NOT have to have a commercial license to
>do that]. I think a CBer can adjust his transmitter, within the limits set
>by the type acceptance [assuming he has the equipment] without a commercial
>license.

It's true that a CBer can build his own transmitter, and it's true that
he can actually turn it on if it gets type accepted. It only costs an
average \$50,000 and 6 months to get a radio type accepted.

A CBer may not adjust anything that affects the frequency, power, or
spectrum of a type accepted CB. Only a General Radiotelephone licensee
may touch those adjustments.

A CBer, or any other person, may possess a non-type accepted transmitter
as long as he doesn't turn it on. No person, except an Amateur Radio
operator, may possess a non-type accepted external power amplifier that
covers 26 to 30 Mhz. Even an amateur operator may not possess more than
five such amplifiers. Note usage is not even relevant, mere possession
of such an amplifier by a non-amateur is illegal.

Gary KE4ZV

Date: 7 Apr 91 17:58:40 GMT
From: ogicse!emory!wa4mei!ke4zv!gary@ucsd.edu

To: info-hams@ucsd.edu

References <1596@aupair.cs.athabascau.ca>, <18255@crdglw1.crd.ge.com>,
<1991Apr5.144823.2094@ux1.cso.uiuc.edu>|

Reply-To : gary@ke4zv.UUCP (Gary Coffman)

Subject : Re: Antenna Matching Gedanken Experiment

In article <1991Apr5.144823.2094@ux1.cso.uiuc.edu> sc80@ux1.cso.uiuc.edu (sc Student) writes:

> I would contend that everybody is a little bit right/wrong to some extent. When a load is mismatched to a load, even without a transmission line and >reflections, there is power lost in the effective internal resistance of the >generating device. When you add and transmission line with reflected power, >a portion of that reflected power (depending on back impedance match) is >also absorbed in the internal resistance of the generator.

A transmitter is not a load! There seems to be a general misconception about this floating around. Let's see if we can clear it up. In classical transmission line theory textbooks it is common to see a source represented as a generator with a series resistor R_s . This R_s is referred to as the "equivalent source resistance". It is stated that maximum power transfer occurs when the load resistance R_L is equal to R_s . The system is said to be matched under this condition. Now with two resistors of equal value in series with a generator, half the power of the generator is dissipated across each resistor. Therefore if this were a true description of our transmitters, we could never exceed 50% efficiency in delivering power to the load. Half the power would have to be dissipated in the transmitter source resistance R_s . This is totally false, real transmitters have efficiencies well over 50%.

So what's the deal? The key here is the word "equivalent". What R_s represents in a real transmitter is the *load-line* of the active device as transformed by the output matching network. This is the *operating point* as defined by the instantaneous E/I of the output device. This is *not* a resistor. It can't dissipate *any* power. To a signal being forced *into* the output of an operating transmitter, it looks like an *open* circuit. Hence we get *total* re-reflection.

>Finally, no

>coax is lossless, and those losses increase with frequency and SWR. Thus >the strenuous effort to minimize VSWR from the earliest days of radio, long >before finicky transistors. Only when the whole system, from output device >to antenna coupling to the "either" (ie. universe) is properly matched is >the maximum amount of power transferred (radiated). K9ALD.

100 feet of RG8 at 3.5 Mhz with an SWR of 10:1 has an additional loss of .46 db over a perfectly matched line. Any matching device used to lower the SWR would likely have greater operating loss. At UHF the loss can

run from 3 to 9 db and it is worth using a matching device with less loss than this to match the line. Note, however, that the matching device of choice at UHF is usually a transmission line transformer. By definition, a transmission line transformer is a piece of transmission line of a specific length that has an SWR of *greater* than 1:1. SWR is your friend, *use* it to help you transfer maximum power to your antenna.

Gary KE4ZV
